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EXAMINER	
TRAN, HIEN THI	
ART UNIT	PAPER NUMBER
1764	12

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/897,453	MAUNULA, TEUVO
	Examiner	Art Unit
	Hien Tran	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-26* is/are pending in the application.

4a) Of the above claim(s) *14-19 and 22-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-13,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1, 3-26* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6, 9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1, 3-13, 20-21 in Paper No. 11 is acknowledged. The traversal is on the ground(s) that the search for one group would overlap with the search of the remaining group and therefore the search and examination of the entire application could be performed without serious burden. This is not found persuasive because not only would the fields of search differ for the inventions of Groups I and II as set forth in the previous office action, but also because the examination of the extra invention; the construction of objections and rejections for the claims of the extra invention; the consideration and/or rebuttal of the applicant's subsequent arguments and amendments in response to these objections and rejections, etc. would all impose an undue burden in examining the extra invention. Furthermore, applicant failed to point any error in the reasoning set forth in paper #10, specifically failed to address the use of the apparatus for treating steam boiler exhaust.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 14-19, 22-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 11.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings are objected to because of the use of foreign language in all of the drawings. Furthermore, it is unclear as to which parts of the drawings A and F represent. Correction is required.

5. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings to comply with CFR 1.84(p)(5), e.g. they should include the reference sign(s) mentioned in the specification and vice versa.

Specification

6. The disclosure is objected to because of the following informalities:

On page 1, line 17 it is unclear as to what "TDI" and "HDI" stand for.

On page 6, between lines 26 and 27 --BRIEF DESCRIPTION OF THE DRAWINGS-- should be inserted.

Appropriate correction is required.

7. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1, 3-13, 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 4 it is unclear as to how the separator is related to other elements of the system.

In claim 5 it is unclear as to what structural limitation applicant is attempting to recite and whether the discharge lines of the cylinder of the engine are parts of the system. See claims 6, 10 likewise.

In claim 6, line 1 it is unclear as to whether the adsorption catalyst is the same as to the adsorption catalyst set forth in claim 1.

In claim 11, "sulfates", "nitrates", "particles", "lean mixture" and "rich mixture" have no clear antecedent basis.

Furthermore, claim 11 is an improper dependent claim as it fails to further limit the subject matter of the previous claims. Apparently, claim 11 merely recites process limitation and therefore is not structurally further limiting. See claims 12, 20 likewise.

In claim 12, "the lean phase" and "the rich phase" have no clear antecedent basis. Also it is unclear as to what structural limitation applicant is attempting to recite.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 5, 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/21647.

With respect to claim 1, WO 00/21647 discloses an apparatus comprising: operational units including: an oxidation catalyst, a particle separator 16 and an NOx adsorption catalyst 28 located upstream of an oxidation catalyst 30 or at the same location as an oxidation catalyst (page 3, line 17 to page 4, line 2).

With respect to claim 5, WO 00/21647 discloses a connecting channel 10.

With respect to claim 8, WO 00/21647 discloses that oxidation catalyst is disposed in the same structure with the separator (page 3, lines 6-15).

With respect to claim 9, WO 00/21647 discloses that the oxidation catalyst contains three-way catalyst metal, such as platinum catalytic metal (page 4, lines 5-11, page 8, lines 12-13, claim 5).

Instant claims 1, 5, 8-9 structurally read on the apparatus of WO 00/21647.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claim 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/21647.

With respect to the specific arrangement of the units, it would have been obvious to one skilled in the art at the time of the invention was made to select an appropriate arrangement for the units since positioning the parts of the apparatus is no more than a design choice, and well within the knowledge of one skilled in the art so as to achieve the purification attendant therewith absence showing any unexpected results and since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

15. Claims 6-7, 10, 13, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/21647 in view of Shinzawa et al (4,887,427) or DE 3,518,756.

With respect to claims 6, 7, 10, the apparatus of WO 00/21647 is substantially the same as that of the instant claims, but is silent as to whether each adsorbent is arranged in an exhaust discharge line of each cylinder of the engine and the discharge line being connected to a connecting channel containing the separator and the oxidation catalyst.

However, Shinzawa et al and DE 3,518,756 disclose provision of each exhaust discharge line of each cylinder of the engine has catalyst filter.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange a set of operational units in each exhaust discharge line of each cylinder of the engine as taught by either Shinzawa et al or DE 3,518,756 so as to enhance the purification of the system thereof.

With respect to claims 13, 21, WO 00/21647 discloses that the adsorption catalyst comprises platinum and at least one element selected from compounds of alkali metals (Li, Na, etc.), alkaline earth metals (Ba, Ca, etc.) and transition metals (page 3, line 17 to page 4, line 2, claim 2).

16. Claims 11-12, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/21647 in view of Shinzawa et al (4,887,427) or DE 3,518,756 as applied to claim 10 above and further in view of EP 758,713.

With respect to claims 11-12, 20, since these claims are directed to method limitations which are of no patentable moment in apparatus claims, the modified apparatus of WO 00/21647 structurally meets these claims.

In any event, EP 758,713 discloses provision of regeneration of the NOx adsorption catalyst by periodically using a lean mixture and a rich mixture (col. 8, line 3 to col. 9, line 12; col. 10, lines 4-6, etc.)

It would have been obvious to one having ordinary skill in the art to alternately regenerate the NOx adsorption catalyst by periodically using a lean mixture and a rich mixture as taught by EP 758,713 in the modified apparatus of WO 00/21647 so as to reuse the adsorption catalyst.

With respect to the specific ratio, it should be noted that the specific ratio is not considered to confer patentability to the claim. The precise ratio would have been considered a result effective variable by one having ordinary skill in the art. As such, without more, the claimed ratio can not be considered "critical". Accordingly, one having ordinary skill in the art would have routinely optimized the ratio in the system to obtain the desired purification thereof

(*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233).

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is 308-4253. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (703) 308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

Hien Tran

HT
February 27, 2003

Hien Tran
Primary Examiner
Art Unit 1764